CLAIMS

1. An organic functional element comprising at least a plurality of electrodes and an organic material layer, characterized in that at least one of the electrodes is composed of a metal having a melting point not higher than a temperature that is higher by 30°C than a glass transition temperature of the organic material layer.

2. An organic functional element comprising at least a plurality of electrodes and an organic material layer, characterized in that at least one of the electrodes is composed of a metal having a melting point of 70°C or higher that is higher by 30°C than a glass transition temperature of the organic material layer.

3. An organic functional element comprising at least a plurality of electrodes and an organic material layer, characterized in that at least one of the electrodes is composed of a metal having a melting point of 70°C or higher to 160°C or lower.

4. The organic functional element according to any one of claims 1 to 3, characterized in that the metal constituting the electrode is an alloy of Bi and at least one kind of other metals.

5. The organic functional element according to any one

of claims 1 to 4, characterized in that a Bi component in the metal constituting the electrode is greater than that of the at least one kind of other metals.

6. The organic functional element according to any one of claims 1 to 5, characterized in that the metal constituting the electrode is an alloy composed of Bi and one, two, three, four or five kinds of metals selected from a group composed of Sn, Pb, Cd, Sb and In.

7. The organic functional element according to any one of claims 1 to 4, characterized in that the metal constituting the electrode is an alloy of Sn and Bi, and a Sn component is greater than the Bi component.

8. The organic functional element according to any one of claims 1 to 3, characterized in that the metal constituting the electrode is an alloy of In and Sn.

9. An organic functional element composed of at least a plurality of electrodes and an organic materials layer, characterized in that at least one of the electrodes is composed of a metal containing an alkali metal or an alkaline earth metal, and a melting point of the metal is 200°C or lower.

10. The organic functional element according to claim 9, characterized in that the metal constituting the electrode is

an alloy composed of Bi and at least one kind of other metals, a Bi component is greater than that of the at least one kind of other metals, and containing both: one, two, three, four, five or six kinds of metals selected from a group composed of Sn, Pb, Cd, Sb, In and Ag; and at least one kind of the alkali metal or the alkaline earth metal.

11. The organic functional element according to claim 9, characterized in that the metal constituting the electrode is an alloy of Sn and Bi, wherein a Sn component is greater than a Bi component and contains at least one kind of the alkali metal or the alkaline earth metal.

12. The organic functional element according to claim 9, characterized in that the metal constituting the electrode is an alloy of In and Sn and contains at least one kind of the alkali metal or the alkaline earth metal.

13. The organic functional element according to any one of claims 9 to 12, characterized in that the one kind of the alkali metal or the alkaline earth metal is 0.01 to 1% by volume, preferably 0.05 to 0.5% by volume.

14.The organic functional element according to any one of claims 9 to 12, characterized in that the one kind of the alkali metal or the alkaline earth metal is 0.01 to 1% by weight, preferably 0.05 to 0.5% by weight.

15. The organic functional element according to any one of claims 9 to 14, characterized in that the alkali metal or the alkaline earth metal is selected from a group composed of Ca, Li, Cs, Mg and Sr.

16. The organic functional element according to any one of claims 1 to 15, characterized in that a gap made between the organic material layer and a base material having a concave part opposite to the organic material layer is filled and formed with the metal.

17. The organic functional element according to claim 16, characterized in that the gap has one or more opening parts, and the opening parts are sealed with a hardened metal.

18. A method for manufacturing the organic functional element of any one of claims 1 to 15, characterized in coating the organic material layer with a particle paste of the metal constituting the at least one of the electrodes, melting and cooling the particle paste to form the electrode.

19. The method for manufacturing the organic functional element of any one of claims 1 to 16, characterized in that the base material having the concave part in which the metal constituting the at least one of the electrodes is melted and maintained is opposed to, and pressed against, a substrate having

the organic material layer formed thereon, such that the organic material layer is contacted with the metal, followed by transferring the metal to the organic material layer and cooling it to form the electrode.

20. The method for manufacturing the organic functional element of any one of claims 1 to 17, characterized in that the gap provided with the one or more opening parts is made between the organic material layer and the base material having the concave part opposite to the organic material layer, and the metal constituting the at least one of the electrodes is melted, injected through the opening part into the gap and cooled to form the electrode.

21. The method for manufacturing the organic functional element according to claim 20, characterized in that a vacuum injection method composed of arranging the metal in the opening part, evacuating the gap and its surrounding predetermined space, and opening the surrounding space onto air in this order is carried out to inject the metal into the gap and thereby forming the electrode.

22. The method for manufacturing the organic functional element according to claim 20, characterized in that an arrangement of the metal in the opening part and a suction of a gas in the gap through another opening part not provided with the metal are carried out in this order to inject the metal into

the gap and thereby form the electrode.

23. The method for manufacturing the organic functional element according to claim 21 or 22, characterized in that a formation of the electrode by the vacuum injection method into the gap or a formation of the electrode by the suction of the gas in the gap is carried out in an inert gas.

24. The method for manufacturing the organic functional element according to claim 23, characterized in that the inert gas is a nitrogen, an argon, or a mixed gas of the nitrogen and the argon.

25. The method for manufacturing the organic functional element according to any one of claims 20 to 24, characterized in including the base material having the concave part with the opening part sealed by cooling and hardening the molten metal.

26. The method for manufacturing the organic functional element according to any one of claims 19 to 25, characterized in that the electrode is formed in a predetermined form depending on a shape of the concave part and the gap.

27. The method for manufacturing the organic functional element according to claim 26, characterized in that the concave part and the gap have a plurality of striped shapes.

28. The method for manufacturing the organic functional element according to any one of claims 19 to 27, characterized in that the base material having the concave part is made of one kind of member selected from a group composed of a glass, a metal, a ceramics and a resin, or a composite material of two or more thereof.

29. An organic EL element having the electrode of any one of claims 1 to 17, characterized in that the organic functional element is an organic EL element.

30. The organic EL element according to claim 29, characterized in that the electrode is a cathode.

31. A method for manufacturing the organic EL element of claim 29 or 30, characterized in comprising a method of forming the electrode according to any one of claims 18 to 28.

32. An organic semiconductor element having the electrode of any one of claims 1 to 17, characterized in that the organic functional element is an organic semiconductor element.

33. A method for manufacturing the organic semiconductor element of claim 32, characterized in comprising the method of forming the electrode according to any one of claims 18 to 28.

34. An organic TFT element having the electrode of any

one of claims 1 to 17, characterized in that the organic functional element is an organic TFT element.

35. A method for manufacturing the organic TFT element of claim 34, characterized in comprising the method of forming the electrode according to any one of claims 18 to 28.